Motor Vehicle Deaths

Definition: All unintentional motor vehicle - related deaths, including those involving drivers, passengers, pedestrians, motorcyclists, and bicyclists. ICD codes E810-E825.

Summary

There were 706 motor vehicle-related deaths in Washington in 1994 (age-adjusted death rate: 13.2 per 100,000; crude death rate: 13.2 per 100,000). Motor vehicle death rates have significantly declined during the past 15 years. The risk of a motor vehicle fatality is greatly reduced by using occupant protection and not drinking and driving.

Time Trends

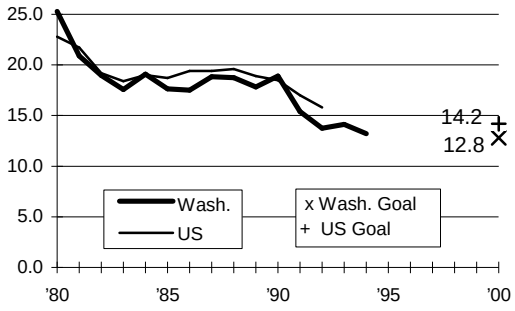
Age-adjusted motor vehicle death rates in Washington have declined significantly from 25.2 per 100,000 in 1980 to a fifteen year low of 13.2 per 100,000 in 1994. Though motor vehicle fatalities remain a leading cause of injury death in our state, the trend shows progress. Much of the improvement is attributable to increased use of occupant protection devices, such as seat belts, and efforts to discourage drunk driving.

Year 2000 Goal

Washington's goal for the year 2000 is an age-adjusted motor vehicle death rate of 12.8/100,000 or lower. The 1994 rate of 13.2 is very close to the year 2000 goal, and the prospect for reaching this goal is excellent.

Historically, motor vehicle death rates in Washington have been slightly lower than those reported for the nation as a whole. The national trend, however, parallels Washington's experience. The national year 2000 goal was recently lowered (from 16.8 to 14.2 per 100,000) in response to better-than-expected progress in reducing motor vehicle-related deaths nationwide.

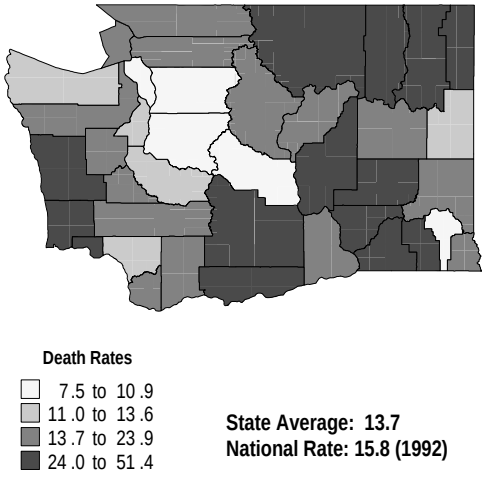
Motor Vehicle Deaths
Age-Adjusted Death Rates Per 100,000 Persons, with Year 2000 Goals



Geographic Variation

In 1994, the predominantly urban Puget Sound area accounted for the largest number of motor vehicle deaths in Washington, with 146 deaths in King County, followed by Pierce County (70) and Snohomish County (51). Death *rates*, however, were highest in rural areas, and primarily in the eastern part of the state. During 1992-1994, the five counties with the highest age-adjusted motor vehicle death rates were Pend Oreille, Ferry, Stevens, Okanogan, and Wahkiakum. Rural areas account for 73% of all fatal collisions, but only 39% of injury collisions. The higher case fatality rate in rural areas may reflect relatively poor driving conditions, lower seat belt use rates, and limited availability of emergency medical services.

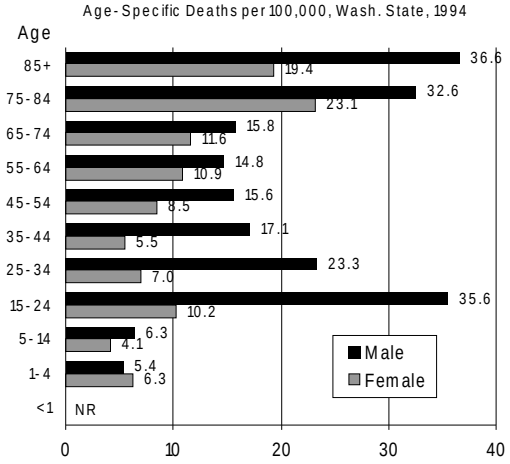
Motor Vehicle Deaths
Average Age-Adjusted Death Rates, 1992-1994



Age and Gender

In 1994, the age-adjusted motor vehicle death rate for all males was 18.5 per 100,000, compared to a rate of 7.8 per 100,000 for all females. Males were at higher risk for motor vehicle death at all ages except birth through age 4. At highest risk were males 15-24 years of age and those 75 and older. The 1994 motor vehicle death rate for males 15-24 years of age was 35.6 per 100,000, nearly three times the rate in the general population. The rates for men 75-84 years and men 85 and older were 32.6 and 36.6 per 100,000, respectively. These rates do not take into account number of miles driven. The elderly tend to drive fewer miles compared to younger people, but their risk of motor vehicle fatality per mile driven is actually likely to be much higher than other age groups.

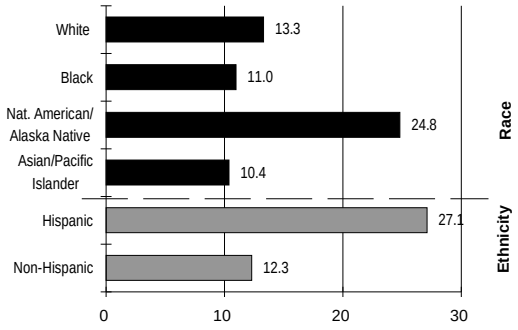
Motor Vehicle Deaths
by Age and Gender
Age-Specific Deaths per 100,000, Wash. State, 1994



Race and Ethnicity

In 1994, whites accounted for 634 of the 706 motor vehicle deaths (90%). Although the number of non-white motor vehicle deaths is small, rates for certain groups are very high. The 1994 motor vehicle death rate for whites was 13.2 per 100,000. By comparison, the rate for Native Americans during this same year was 24.8 per 100,000, and for Hispanics the rate was 26.8 per 100,000. The reasons for these differences cannot be determined with available data.

Motor Vehicle Deaths
by Race and Ethnicity
Age-Adjusted Deaths per 100,000
Wash. State, 1994



Other Measures of Impact and Burden

Hospitalization. Motor vehicle crashes may result in death, but more often they result in nonfatal injuries, many of which require hospitalization. In 1994 there were 4,646 nonfatal motor-vehicle related hospitalizations in Washington. Nonfatal injuries outnumbered fatalities by a ratio of nearly 7:1.

Deaths per vehicle miles traveled. Of the 706 motor vehicle deaths in 1994, 639 were traffic-related. The death rate per 100 million vehicle miles of travel in 1994 was 1.34, representing a 12.5% decline compared to the previous four year average.[1]

Risk and Protective Factors

Drinking drivers. Alcohol impaired drivers account for a substantial portion of traffic fatalities in Washington state. In 1994, the percentage of all traffic fatalities that involved drinking drivers who were "driving under the influence" (DUI) was 38%, with 243 persons killed.[1] If drinking drivers with "impairment unknown" or "ability not impaired" are included, the percentage of all traffic fatalities involving drinking drivers was 44% in 1994. The number of collisions involving drinking drivers has decreased during recent years, with a 21% reduction in DUI driver involvement in fatal crashes since 1990.

Youthful impaired driving. A significant portion of the drinking driver problem is attributable to drivers age 24 and younger, accounting for 12% of all traffic deaths in 1994. Almost all the youthful drinking driver trends show 1994 decreases of more than 20% compared with the previous four years.[1]

Driver violations. The majority of driver violations in traffic collisions, based on judgment of police officers, include failure to yield right of way, excessive speed, following too closely, and driver inattention. For teenage drivers, "speed too fast for conditions" was the leading violation in collisions.[1]

Occupant protection. Seat belts save lives. The use of seat belts and child restraints in Washington continues to increase. Data from the Washington Traffic Safety Commission (WTSC) show that 80% of the occupants of passenger vehicles buckle up, with the exception of many rural areas, where usage is observed to be about 70%. Use rates are significantly lower for pickup trucks and heavy trucks. For the 20% to 30% who don't buckle up, the unbelted occupant is fifteen times more likely to be fatally injured and six times as likely to sustain a disabling injury than is an occupant who is restrained.

The use of child safety seats has reduced the likelihood of fatal injury by an estimated 69% for infants and 47% for toddlers in the United States.[2] An observational study conducted in Washington by WTSC in 1994 found that 78% of children under age 10 were seated in some type of restraint system. Some misuse was noted for nearly 13% of children who were restrained (most common types of misuse included "child too young for restraint type" and "infant seat not facing rear."

Motor cycle helmets. Passage of the motorcycle helmet law in 1990 has been associated with substantial decreases in motorcycle fatalities and injuries. Between 1989 and 1994 the number of motorcycle drivers and passengers killed decreased by nearly 50% and the number of injuries decreased by 35%.[1]

Roadway and vehicle design. Roadway and motor vehicle design are important factors affecting motor vehicle death and injury rates. Our success in reducing motor vehicle fatalities is partly due to advancements in motor vehicle "crashworthiness" and a variety of engineering solutions to traffic hazard problems.

High Risk Groups

Youthful drivers. Youthful drivers are over-represented in total traffic collisions (including drinking-driver and non-drinking driver collisions). Their rates, compared to the licensed driver population as a whole, are almost three times greater for total collisions and more than two times greater for fatal collisions.

Pedestrians and pedalcyclists. Pedestrians and pedalcyclists are extremely vulnerable to motor vehicle injury. Pedestrian fatalities accounted for 85 traffic deaths in 1994, an increase of 6% over the previous four-year average. The age group with the highest ratio of persons killed and injured compared to their population was the 15-19 age group, followed by the 10-14 age group. Pedalcyclists accounted for 14 traffic deaths, a 56% increase from the previous four-year average. Thirteen of the fourteen pedalcycle fatalities in 1994 occurred in rural areas. The highest frequency of pedalcyclist deaths and injuries were in the 10 to 14 year age group, which showed a 21% increase over the previous four year average.[1]

Occupants who fail to use protection. WTSC collision data show the age group of 11 to 15 had the lowest restraint use rate in 1994. Among drivers involved in 1994 collisions, those who had been drinking were less likely to be wearing restraints than non-drinking drivers (64% use rate for drivers under the influence compared with 95% use rate for non-drinking drivers).[1]

WTSC's observational survey of restraint use by children under age 10 found lower restraint use for the child passengers of male drivers and drivers 16 to 25 years old, drivers who themselves were not using seat belts, and child passengers in low-value vehicles.

Intervention Points, Strategies and Effectiveness

Washington's progress in reducing motor vehicle death rates reflects efforts to implement a statewide trauma system, reduce the incidence of drunk driving, increase the use of occupant protection devices, and improve the safety of roadways and automobiles. Continuation of these successful efforts would probably bring further progress.

There is some concern that recent increases in speed limits will negatively impact motor vehicle death rates. The effects of increased speed limits should be monitored. In addition, special emphasis could be given to the following:

Reducing alcohol-impaired driving is one of the key priorities in highway safety. Several major areas of emphasis are the hard-core, repeat

offender drinking driver, increasing the conviction rate for DUIs, programs addressing youth (including the high-risk 21-34 year old group), and continued education for the public with regard to the law.

In 1994 and 1995 new underage impaired driving laws were adopted, with penalties for drivers under age 21 with a blood alcohol content of .02 or higher. Aggressive public information and education campaigns targeting underage drivers are planned, as well as strict enforcement of the zero tolerance law.

Curfews and graduated licensing systems are effective interventions to reduce injuries and deaths to youthful drivers.[3] Curfews reduce recreational driving with a car full of teenage passengers during nighttime hours. They are a very effective countermeasure. In most cases, police do not enforce the curfew (there are very few citations issued for violating curfews where they are in effect); it is the parents who enforce the curfew.

Graduated licensing modifies driving exposure so that new drivers accumulate experience in lower risk situations. First there is a learning stage, when the new driver drives on a supervised basis for a set period of time. Then comes a license for unsupervised driving, but not under high risk conditions. For example, driving between 10pm and 5am and carrying teenager passengers without an adult in the car would be prohibited. After completing the second stage, the driver receives a full-privilege license.

Enactment of a "primary enforcement" seat belt law would likely increase use of occupant protection. Washington currently has a secondary law which allows seat belt enforcement only when a driver is stopped for another violation. According to the Washington Traffic Safety Commission, other states have found increases in seat belt use rates of up to 10% following change from a secondary to a primary law.

Data Sources

State motor vehicle death data: Washington Department of Health, Center for Health Statistics. Prepared by DOH Injury Prevention Program.

State nonfatal motor vehicle-related hospitalization data: Washington Department of Health, Hospital and Patient Data. Prepared by DOH Injury Prevention Program.

National motor vehicle death data: National Center for Health Statistics.

Risk and protective factor data: Washington Traffic Safety Commission.

For More Information

Department of Health Injury Prevention Program
Telephone: (360) 586-5693.

Washington Traffic Safety Commission: (360) 586-3873.

Technical Notes

Age adjustment: See technical appendix

Race and ethnicity: See technical appendix

Endnotes:

[1] Traffic collisions in Washington State. Washington Traffic Safety Commission. July, 1995.

[2] Morbidity and mortality weekly report. Centers for Disease Control. August 30, 1991.

[3] Williams A. Young drivers. Pacific northwest symposium on reducing motor vehicle-related injury. September, 1995.